ABSTRACT

A method and apparatus of implementing protocol state machines that conserve energy on energy conscious devices is disclosed. Under this method, most of the energy consuming protocol state machine context invocations or operations are aggregated in time and are

5   scheduled at regular intervals. Such an aggregation leads to many contexts executing concurrently in a burst prior to entering a dormant state. Thus, resource usage can reach a predictable rate pattern of idle and active cycles. With such a pattern, it is possible to take advantage of the energy saving features of processors by downshifting the processor clock speed and use of other resources such as peripherals and buses. The intervals are configured to achieve

10   a tradeoff between timely execution and energy consumption. The aggregation operates across two dimensions, namely, multiple instances of a protocol state machine and multiple layers of protocols in a layered architecture.